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strategic air command

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Combat Crew

Magazine of the Strategic Air Command - 31st Year of Publication

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ON OUR COVER

Season's Greetings to you from the staff of Combat Crew.

SACRP 127-1 **VOL. XXX NO. 12** **DECEMBER 1980**

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Lt Gen James P. Mullins
Commander, 15th Air Forc

We in the Air Force are equipped with some of the most modern and sophisticated communications systems in the world. While there are still shortcomings in some of these systems, they are, nonetheless, highly efficient products of an electronic age; they allow us to pass back and forth easily — almost instantly — data of great operational significance, as well as routine matters.

It has been my observation, however, that we sometimes allow ourselves to become virtual prisoners of our own sophistication. There is a propensity to lose sight of the fact that the whole idea of communication is to pass information between *people,* and in our daily rush to "get the job done" we sometimes do just the opposite — by overlooking the *message* itself. No matter how rapidly we can transmit data from one point to another, in nearly every case *people* must take some action on that data if the desired outcome is to be achieved.

Social scientists are fond of looking at this problem in terms of a three-part model: the sender, the medium, and the receiver. If the message becomes even slightly garbled at just one of these points, chances are it will not have the intended effect, no matter how efficient the medium and the technical equipment involved. These same experts remind us that interpersonal communication is essential to something near and dear to everyone: job satisfaction.

Effective interpersonal communication has long been recognized as basic to any successful human endeavor. We all like to think of ourselves as effective communicators. When someone misunderstands, or the message is garbled, it is our nature to blame someone else or som outside influence. More often than not, however, the problem is with the sender, and the

"What we have here is a failure to communicate"

consequences are frequently painful. Think of the many public figures, for example, who have made seemingly innocuous statements — only to spend weeks explaining "what they really meant."

In the Air Force, as elsewhere, it is often our own lack of concern or attention that is at least partially to blame for misunderstandings. How often does a commander, for example, formulate a clear idea, but — in the press of a myriad of activities — communicate only a portion of that idea to the staff, then become frustrated when action taken does not conform to his intentions? As an aircrew or missile combat crew member, how well do *you* communicate with others on your crew and in your support elements? I mean, truly *communicate*. How frequently do you, as staff officers, rely on the ever-present memo pad when you should really discuss the matter face-to-face with those involved.

In the Strategic Air Command, as in the rest of the defense establishment today, we face problems of every sort and description. How many of these could be overcome, or at least simplified, if we could but discipline ourselves to communicate more effectively?

We are all busy. The demands on our time are extensive. Such is not an atmosphere that encourages explanations or the asking of questions; in fact, the very nature of military life sometimes dictates the opposite. There may even be a tendency to rationalize poor communication by hiding behind the military dictum which calls for unquestioning obedience when directions are given. In that environment, can we be sure the message we send is the one received?

But we must not look at the problem as one emanating *solely* from the top and issuing downward. In a profession in which cooperation between individuals and organizations is fundamental to success, communication between peers and from subordinates to superiors is equally significant. That is especially true in a society that is increasingly more prone to seek explanations — to know "why" as well as "what" — and that is the same society from which our military personnel are drawn.

The fact of the matter is, however, that peer group and upward communciations do not receive as much attention as does the flow from top to bottom, with potentially severe consequences in terms of effective and efficient mission accomplishment.

Those in positions of responsibility must reflect these factors in their leadership and management techniques. In every case, it is important to be sure we send the right message, and make every effort to send that message clearly and directly to minimize the chance that it will be "garbled in transmission" or misinterpreted by the receiver who is beset by his or her own perceptions. We also must not forget the messages can be nonverbal, "body language" for instance, and that all are important, all have impact.

Of course, poor communication is not the cause of all our problems. Failure to communicate is not necessarily the reason we do not always get the response we want. But effective communication will go a long way in helping achieve the desired outcome.

In the final analysis, our desired outcome is combat capability. In combat, communications dominate; they are the most important single element in strategy, planning and execution. Let us be certain we do not have "a failure to communicate." ★★★

CINCSAC COMMENTS

BUSY PRAIRIE represents far more than just another military exercise. It was a live demonstration of a capability that is critical to protecting our vital national interest throughout the world. With the completion of BUSY PRAIRIE, SAC's Strategic Projection Force transitioned from a concept in the mind of a planner to an instrument of unlimited military and diplomatic potential that can instantly respond to our nation's leaders in times of crisis.

The significance of BUSY PRAIRIE, however, does not stop at the national level. In reality, the success of this exercise allowed the nations of the free world to take one giant step back from the threshold of nuclear war. Should the time come when the aggressor leaves us no other course but to act, there is now an additional alternative to a nuclear confrontation.

There were many "lessons learned" throughout the exercise. The most important lesson is that Busy Prairie was only successful because we operated as a team. I was there. I saw it in the people as they pulled together and gave 100 percent toward a single goal . . . the mission.

The drive and determination of everyone participating in the exercise once again confirmed to me, and a lot of other people, that there is no challenge the men and women of America's armed forces cannot, and will not, meet. It is this spirit that has made our nation great and will forever preserve our democracy.

Each person who helped make BUSY PRAIRIE work should stand tall, and be proud of a tough job well done. You have proven to those around the world who oppose us, that the Strategic Projection Force is ready.

BUSY PRAIRIE

Lt Col George L. Newton, III
Hq SAC/XO, Offutt AFB

The National Command Authorities have directed the United States military to develop a capability to rapidly deploy conventional forces world-wide in response to potential time-sensitive crises. Just how rapidly depends on the situation, but the requirement calls for a long range quick response with the capability to conduct combat operations prior to the arrival of other military forces. SAC's Strategic Projection Force was developed to meet this challenge, and support the Rapid Deployment Joint Task Force and theater commanders anywhere in the world.

Although the B-52D is a seasoned combat veteran of proven effectiveness, SAC has selected the B-52H for the Strategic Projection Force. The "H" is capable of a far greater unrefueled range than the "D" and has considerably more sophisticated penetration capabilities. There are three specific advantages derived from employing the B-52. First, the bombers can operate from "sanctuaries" outside the hos-

tile fighter threat area. Second, because the aircraft are bedded down outside the immediate battle area, they are not competing for airfield and basing facilities with other United States or allied forces. Third, they can be employed by the theater commander without competing for overly committed KC-135 air refueling resources.

With the B-52 as the core of the Strategic Projection Force (SPF), the EC-135, with radar support from the E-3A, serves as airborne battlefield manager to direct EA-6Bs, evaluate near real time intelligence for airborne threats and routing changes, and provides connectivety between SPF forces. The RC-135, U-2R and the SR-71 provide intelligence for the SAC Forward Annex Fusion Center. These aircraft also provide the key aspects for theater intelligence, communications from the battlefield to the National Command Authority, and an enhanced, secure theater command, control and communications system. Essential elements also include the prepositioning of POL and munitions at forward bases.

The 57th Air Division at Minot AFB, North Dakota, is organized and augumented to fulfill SPF requirements, and is the command center for all SPF exercises and operations. The division is exercised regularly to develop and insure the quickness which is critical to success.

To exercise the SPF's capability, HQ SAC selected Whiteman Air Force Base as a forward operating base to provide realistic training for the forces and personnel assigned to the Strategic Projection Force. Whiteman is normally a quiet, serene place tucked into the hills just east of Kansas City, Missouri. Once a home for B-47s, very few airplanes now occupy or operate from the almost empty parking ramps and runways. The exercise which took place during the last half of September, 1980, had a profound effect on the lives of over 1500 SAC personnel and turned this quiet Missouri setting into a BUSY PRAIRIE.

Tent pallets from Harvest Eagle Kits

The evolution of exercise BUSY PRAIRIE began during the last week of August as a "paper" exercise with no deployment, progressed through a planned partial deployment and emerged as a full-blown deployment exercise requiring a 1100-man HARVEST EAGLE package. The support force was composed of units from four bases. The basic unit at Minot was augmented primarily by Blytheville, Offutt and Whiteman, while 11 contingency support sets from other bases assisted with lighting, communications, transportation, and other special areas of operation. Experience in TAC, PACAF and USAFE revealed that nearly five days were required to set up the HARVEST EAGLE package required to support the flying operations. HQ SAC dictated that besides being executed on a no-notice basis, the pre-execution must be completed within 72 hours.

During this time, Whiteman civil engineering personnel were conducting a local exercise called "GIANT THRUST". In the second week of September, people from Offutt began filtering into Whiteman under the guise of assisting the local civil engineers. Still using GIANT THRUST as a cover for the arrival of additional personnel, "E" hour for BUSY PRAIRIE was established at 0600L on Friday, the 19th of September. At 0520 that morning the first of the PRIME BEEF and PRIME RIBS teams arrived. By planes, trucks and buses the people poured into Whiteman. Before the sun rose over the empty ramp, 298 people were ready to process, eat a C-ration breakfast, and receive a briefing on what the next 72 hours would hold.

The job of building Camp Prairie was divided into projects by a task-oriented system. Each project was assigned to a team whose composition was based on individual project's needs. These teams worked from detailed plans which outlined all aspects necessary to construct the BUSY PRAIRIE complex. At 0830 Friday morning, the work began.

The empty area on the south end of Whiteman's ramp turned into a beehive of activity. Turning concepts into reality is a matter accomplished only through skill, coordinated efforts, and just hard work. Surveyors layed the stakes where Camp Prairie's cantonment was to be located. Many times a crew with shovels followed the surveyors so closely it appeared they would be buried. The procession of supplies from marshalling areas to the cantonment site was nonstop. Plywood was turned into floors and walls, large canvas packages were dumped in strategic locations, electric generators were positioned, and most important, the kitchen equipment was unpacked.

Feeding 1200 plus people in field conditions is a tough job at best. The PRIME RIBS contingent aimed to have their mobile kitchen ready to serve the troops by Monday morning at the latest. C-rations are OK for a very short time, but *a hot meal does wonders for weary GIs,* doubling and redoubling their efforts. The PRIME RIBS team raised their tents, assembled their cookware, stoves and water heaters, and set up a dining area in record time. At E-hour plus 36, Camp Prairie's kitchen was open for business.

Meanwhile, on the other side of the camp, the PRIME BEEF team was hard at work providing the second most important thing to a hard-working man or woman, a hot shower. The showers started as a hole in the ground. Into this pit, for peacetime environmental standards, went yards and yards of gravel creating a solid but porous base for the shower tents. Using the principle of the "FRENCH DRAIN" system, a sump was set in one end of the pit. The tents themselves were constructed in three sections: shower-room, dressing room and shaving room. The floors of the shower and shaving room were made of wooden grates, through which the

1st B-52H arrives over Camp Prairie

water ran. The water then made its way through the gravel into the sump where it was removed at regular intervals. Water was heated by gas burners in huge rubber bladders and by Sunday, the shower/shave section was ready.

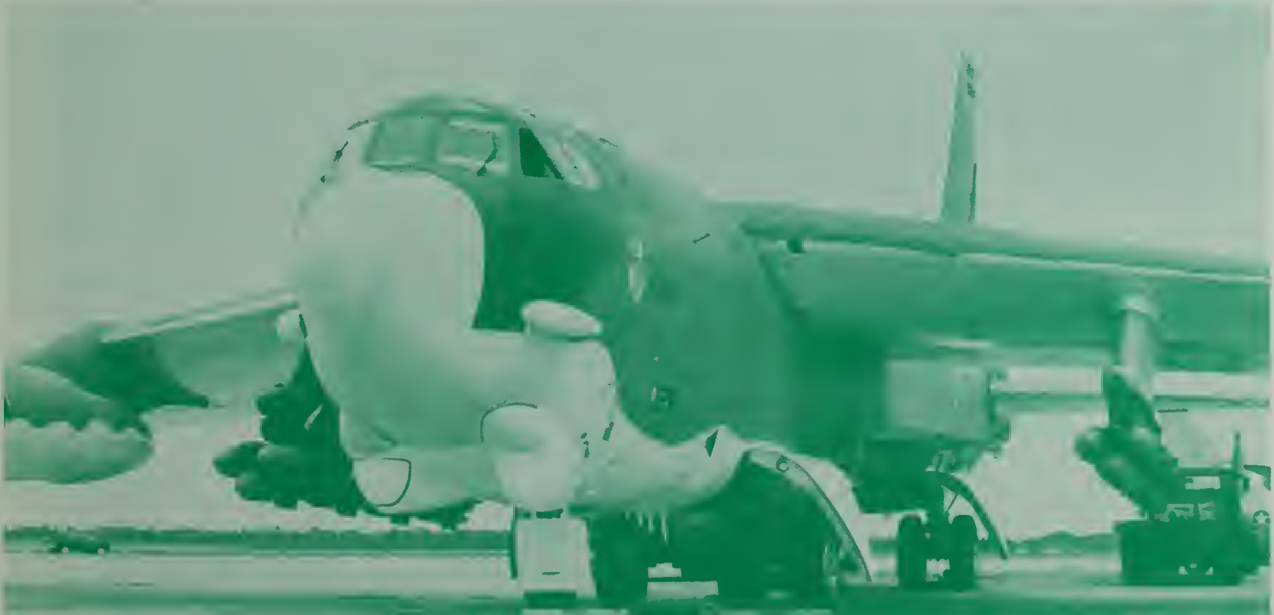
Slowly, Camp Prairie grew. More and more tents were raised, each one more quickly as the people gained experience. More stakes were set, more plywood floors laid, more tent pegs driven, more tent sets unloaded, and still more tents went up. The empty land south of the ramp began to fill up and as it did, it began to attract the interest of people who had set the exercise in motion. Major General Adams and Brigadier Generals Rachael and Catlin visited Whiteman early Saturday and were impressed with the massive effort of the PRIME BEEF and RIBS teams.

Even as the camp was taking shape, life at Camp Prairie was settling into a routine. The troops were glad to see the cots after a long hard day. Breaks from the labors of camp building gave the crews time to consider the magnitude of their efforts. A drink of water, a short rest, a few words with a new friend and it was back to work.

Water is important to any cantonment and is usually taken for granted by everyone except those who plan for it and those who supply it. But every one in the camp was affected whether they drank it, cooked with it, or showered in it.

Electricity is another everyday fact of life nobody thinks much about. With strategically located generators, every tent had at least enough light so you wouldn't get into the wrong bunk. The generators also supplied power for the

Continued on Page 20



Static display showing future external weapon carriage modification for Grand Forks and Minot B52-H aircraft. The mod will add 12 external stores under each wing.

SAC wings have contingency plans to guide them in the event of a natural disaster, but Mount Saint Helens was definitely . . .

An Unexpected Visitor

Photos by SRA McLeod

Ramp cleanup after ash storm.

CAPT Patrick M. Rosenow
92 ARS Fairchild AFB

At 8:32 AM PDT, 18 May 1980, Mount Saint Helens in southwest Washington erupted sending ash, dust and steam over 60,000 feet in the air. There had been minor activity in the mountain for months, but no one expected this eruption would turn the summer of 1980 into a period of crisis and uncertainty for many — including the 92d Bomb Wing at Fairchild AFB.

Actually, Sunday, May 18th, was the 1980 edition of Fairchild's Open House for the people of eastern Washington. By early afternoon, over 60,000 visitors had arrived to watch the activities and to see the 45 aircraft that had flown in. Most were aware that the mountain had erupted but few were very concerned about it.

At 1230, some four hours after the eruption, Grant County Airport, 60 miles southwest of Fairchild, reported zero visibility due to blowing ash. It became apparent the ash cloud was blowing straight for Fairchild, and fifteen minutes later the air show was cancelled. The SR-71 on static display was quickly towed inside a hanger. Alert crews were recalled to the alert facility and alert bombers and tankers were taped and plugged up to keep the coming ash out.

By 1400 a black ridge began to grow on the western horizon. The Open House was terminated and all visitors were asked to leave. The visitors' departure was orderly but marked by extremely dense traffic. No less dense was the aerodrome traffic as transient aircraft raced to depart before the ash arrived. Seventeen of the 45 planes escaped, with the last few having to turn immediately after takeoff to avoid penetrating the huge black curtain now just off the departure end of Runway 23. The sky was totally blackened with ash and temperatures dropped, giving Fairchild midnight conditions at 3:30 in the afternoon. One-half hour later the aerodrome was closed and everyone stayed inside watching the fine grey powdery mist sift down on everything. Over one-half inch of ash fell on the area Sunday afternoon alone, closing all roads. Alert personnel received surgical masks to wear whenever it was necessary to go outside.

Dawn on Monday, May 19th, revealed a bizarre, grey landscape of blowing and hanging ash that was not unlike a 1950 science fiction movie of Venus. The fallout continued and any disturbance stirred up clouds of ash. All travel by car was extremely hazardous, both to driver and engine. Visibility remained below one-half mile. Only the hospital and dining hall were open and non-essential personnel were put on telephone standby. The ash was everywhere and there was a great deal of uncertainty as to its long term effects. Respiratory protection was a primary concern and a shortage of masks soon developed. The ash could short out power lines and transformers. Hundreds of automobile engines were ruined as the ash worked its way through air and oil filters. In spite of continuous use of brooms, brushes and vacuum cleaners, the indoor battle of the ash was at best a draw the first few days.

Sgt Pat McCormack of the 92d Transportation Squadron, Fairchild AFB, washes off ash from an air cleaner in the base motor pool. Keeping air filters clean was a major concern following the Mount St. Helens eruption May 18.

Hanger space had been found for all non-alert B-52s and two KC-135s. All off-base 92nd Bomb Wing aircraft were instructed to stay clear of the area. At 1000 the cleanup began as Base Civil Engineers started washing down the runway. Unfortunately, any activity, especially that involving mechanized equipment, stirred up even more ash. Conditions on the 20th and 21st remained much the same, although the fallout finally abated, allowing the flight line cleanup operations to begin in earnest. Groups of masked volunteers were everywhere with hoses, shovels, and brooms.

The huge volume of water used created a shortage, which required that areas be given priority for cleanup. Naturally, the runway and alert taxiways were first to be cleaned.

During the early morning hours of the 22nd, rain began to fall. This provided enough improvement for eight transient aircraft to leave, and the aerodrome to open to aircraft with prior permission. When the rain ended, however, gusty winds quickly dried out the ash and began blowing it around again.

On the 23rd the flight line cleanup continued and plans were formulated to deploy aircraft, crews and maintenance people to Mather, Beale and Travis and use them as satellite training locations until the cleanup was complete. Boeing engineers recommended that "clean" aircraft not return to Fairchild. Three clean 92nd Bomb Wing aircraft were sent to the satellite bases. A base wide cleanup was initiated on the 24th and the next day Mount Saint Helens erupted again. Fortunately, favorable winds spared Fairchild and by the 27th the flightline was clean enough to start on the dirty aircraft.

On Thursday, 28 May, eleven days after the eruption, two B-52s departed for March AFB. They were the first 92nd Bomb Wing aircraft to operate out of Fairchild since the eruption. Both bombers left a huge cloud of ash behind them. On top of everything else, three funnel clouds approached the base the next day, resulting in a tornado watch.

Crew removes ash from alert vehicle.

The cleanup continued with all aircraft washed at least once by the 4th of June. Engineers from Boeing inspected the aircraft and advised that they all should be rewashed and relubed as traces of ash were still found in many places. The official base wide clean up was discontinued on the 6th of June. The next day the last transient aircraft, a CH-47 departed.

Ninety Second Bomb Wing tanker operations from Beale and Travis and bomber operations from March began on 2 June. Crews deployed on Sunday and return the next Friday to go back on alert the following Wednesday. While this schedule meant a lot of time away from home, the bomber crews had a chance to go TDY and everyone got some diversified training. The 140 maintenance personnel rotated monthly. A very limited number of missions were flown out of Fairchild, with aircraft being towed to and from hammerheads and prohibited from making touch and go landings.

As the cleanup gradually progressed through June, operations at Fairchild began to return to normal. The 92nd Bomb Wing participated in Global Shield in late June, and on the 19th of July, the satellite training operations ended. On the 17th of July, 60 days after the eruption, operations at Fairchild finally returned to normal, but five days later the mountain erupted again. At 1715 PDT, 22 July, Mount Saint Helens erupted for the first of nine times that day. Ash was blown to 60,000 feet and the cloud started east. At 1900 heavy ash fallout was reported between Fairchild and the mountain. Forty-five minutes later, SAC authorized the launch of selected bombers and all tankers to refuge bases.

Crews were recalled to the base and tanker crews taxied their aircraft to the fuel pits for defueling. The flight line was busy with activity as maintenance personnel and flight crews hurried to ready their aircraft. Less than four hours after the initial eruption, the first B-52 took off. Twenty minutes later the first tanker was airborne. Some tankers were sent to Eielson AFB, Alaska. Other tankers and bombers were sent to SAC bases in California. All aircraft were launched within seven hours of the first eruption.

A wind shift limited the fallout on Fairchild to a light dusting and the evacuated aircraft were recovered the next day. As the tankers from California returned, their counterparts in Alaska were released to return home. By late evening of the 24th of July, all aircraft had arrived back at Fairchild. The 92nd Bomb Wing had "generated," evacuated, and recovered it's aircraft within 60 hours.

The mountain has been "relatively" quiet lately, but geologists say that she is by no means done and scientists are still arguing about the long term effects of the ash. Her activities during the summer of 1980 cost the 92d Bomb Wing over one-half million dollars in cleanup expenses. Moreover, the wing lost a great deal of training during the fallout. But, whatever the challenge, the men and women of the 92d demonstrated the professionalism that enables them to rightly say "We can handle it."

Ed Note: The following article was written primarily for the B-52D operation. However, the method discussed can also be utilized by G and H model navigators. In fact, testing with the G model is currently underway to use the Prisell (Prideaux-Hadsell) method for low altitude station keeping.

FIND THE BEACON

Capt James R. Prideaux
IRN, Crew S-01 March AFB

If you are a B-52D radar navigator or navigator, and the ability to interrogate a tanker beacon, navigate in ground map, monitor weather, and station keep simultaneously and safely appeals to you (Yes, I said B-52D, not B-1) I may have good news.

As a radar navigator at March AFB, I was fortunate to be part of the development and testing of an innovative new technique that enables the D model navigator all of the above mentioned options. I first became aware of the possibility of this procedure thanks to Glen C. Hadsell, while he was TDY to March AFB as a civilian consultant from the Science and Research Office (NRT) at HqSAC. It was his idea to conduct a simple flight test to see if we could come home with ASQ-48 camera photos of a rendezvous conducted with a KC-135 with simultaneous ground map, weather returns, tanker echo and tanker beacon code.

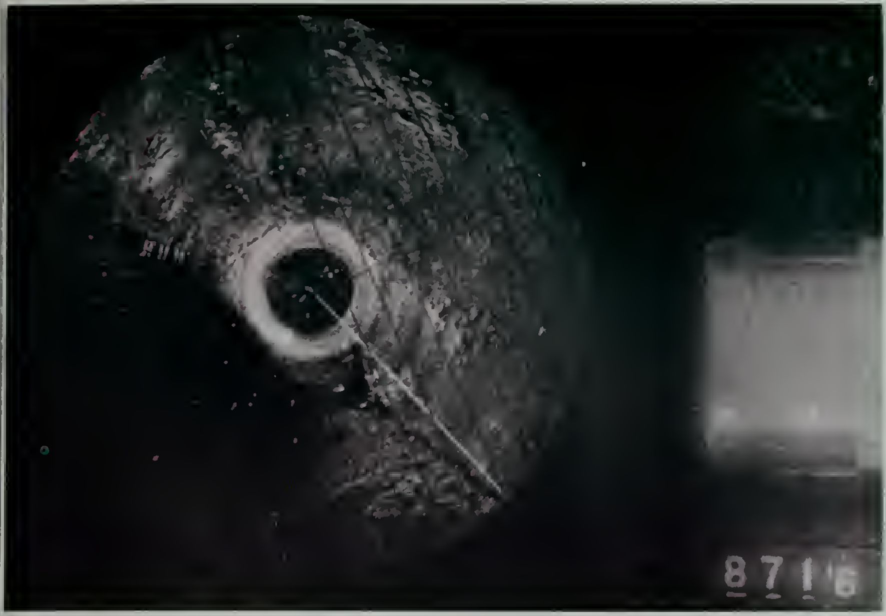
I was selected to fly the test missions and attempt several new techniques on the old ASQ-48 system. A fifteen minute briefing, a short checklist jotted down on a three by five card, and I was off to find the beacon. That flight and subsequent test flights revealed some interesting and rewarding capabilities of the old system which I was anxious to share with other B-52D navigators. The following is an account of the flight tests with a reference to tuning procedures, and a brief overview of the theory involved in what we immodestly call the "Prisell *(Pri*deaux-Had*sell)* Electronic Rendezvous."

We departed March AFB on our first flight as a single ship with a planned on course rendezvous at the Needles Vortac. At eighty miles I requested the tanker to go to short pulse on his APN-69B. Then, following Mr. Hadsell's checklist, I was able to select radar mode and manually tune the beacon return to superimpose on the ground returns. Two days later we accomplished the second test flight. This time we were second in a two ship cell and met two tankers at Needles once again. During mission planning I coordinated with the second tanker navigator to place his beacon in operate on the short pulse. Using manual tuning and the proper switchology, I was again able to paint beacon and ground returns. In addition, since we still had to maintain cell integrity, I was able to station keep off the lead bomber. Figure one is a photo of lead bomber on skin paint, the KC-135 with code 2-2-2 set, and ground map returns.

Figure two shows the tanker within the altitude hole. The actual aircraft skin paint is visible approximately one third mile prior to the beacon code. This is due to the .34 NM beacon code delay built into the system.

What is the significance of all this to us as navigators in the B-52D? It means that we now have the capability to monitor for weather returns during a rendezvous. We no longer have to intentionally "lose the tanker on radar" as we switch from beacon mode to radar mode of operation.

Figure 1



The Prisell technique allows for precise interrogation and display of the tanker APN-69B beacon return. (See figure three). In addition, it allows station keeping with lead bomber with simultaneous ability to monitor tanker position. It can be a valuable aid to an Airborne Radar Directed Approach (ARDA), as well as for low level cell formation flying.

I would like to expound on the first of these items — weather avoidance. The B-52D Air Refueling Flight Manual (T.O. 1-1C-1-5) has the following warning, "In the event weather conditions may affect the accomplishment of the rendezvous, a capable receiver will be specifically designated to maintain radar weather watch, and will have the primary responsibility of insuring that all aircraft involved are directed (within his capability) clear of hazardous weather. If this aircraft is also required to accomplish the rendezvous, a suitable alternate type rendezvous will be employed. This is required since alternating operation of the radar set in beacon mode and radar mode detracts from the receiver navigator's primary responsibility of avoiding hazardous weather." With Prisell tuning, there is absolutely no requirement to switch from beacon mode to radar mode since the entire rendezvous is conducted in radar mode. This is a very significant safety feature during a potentially hazardous phase of flight.

Today's D model has a role as a contingency bomber that requires numerous cell departures and join ups with tankers enroute to the targets. With safety being of prime importance, it is imperative that all aircraft be aware of the weather hazards that exist. The Prisell electronic rendezvous allows for those aircraft in cell, as well as lead bomber, to monitor for weather while conducting an on-course or point-parallel rendezvous.

Aside from the all-important aspect of weather avoidance, the Prisell technique allows a scope presentation for the navigator to effectively navigate to the rendezvous point. Until now, when the radar navigator switched to beacon mode, the navigator had only counters and dead reckoning to navigate. This proved to be a difficult phase of navigation with degraded equipment. Since we do not have the luxury of Inertial Navigation System or Tacan downstairs in our bomber, we must rely on our radar scope for precise navigation. Our Air Refueling Manual makes it quite clear in section three that *precise* navigation is required. We are to make good the Air Refueling Initiation Point (ARIP) and proceed down track on course. The ability for the navigator to utilize his scope to navigate enhances the chances for conducting a safe and effective rendezvous with the tanker.

Once the rendezvous has been completed to within four nautical miles, the radar navigator has to transition from beacon mode to skin paint operation. This proce-

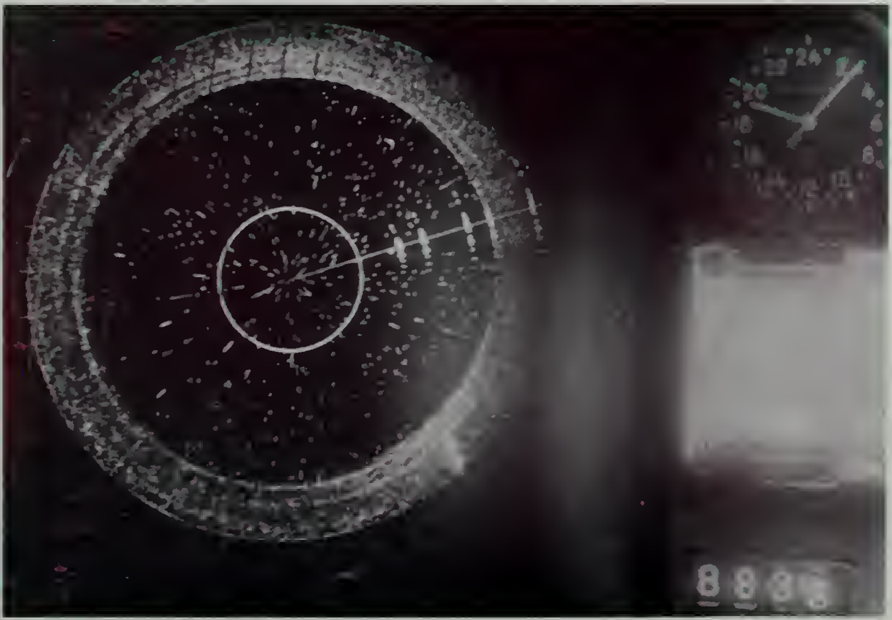


Figure 2

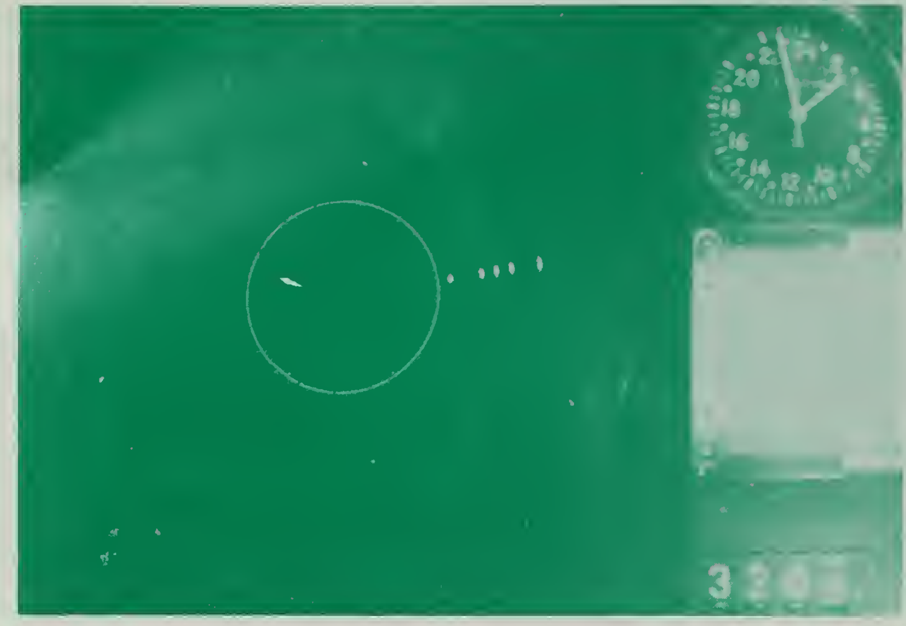


Figure 3

dure is described in the Air Refueling Manual. It states, "Radar skin paint should be attempted as soon as practical to insure more accurate range calls." Once again, the Prisell method eliminates the need to transition from beacon to skin paint. Since the entire rendezvous is accomplished in radar mode, the aircraft skin paint will appear in the altitude hole automatically without any reconfiguration of the radar mode, frequency, etc. There will be no need to "lose the tanker on radar" as we have done previously. (See figure two). This added safety feature is especially evident during a point-parallel rendezvous where the radar navigator loses the beacon during a critical time of the join up. The beacon is generally lost as the tanker crosses in front of the receiver. Time is lost as the radar navigator tunes off beacon frequency, reconfigures his scope, and attempts to relocate the tanker on skin paint. Radio transmissions clutter up the interphone during this critical phase. "Pilot, I'm going to skin paint." "Pilot, I lost the tanker on my scope." "Pilot, lift the nose of the aircraft." Meanwhile, the radar navigator comes out of beacon mode, changes the frequency, adjusts the tilt, and searches for the tanker skin paint. "OK pilot, I have him at 2:30, come fifteen degrees right." The extra clutter, reconfiguring, and large alterations are not required during a Prisell rendezvous, since the tanker skin paint appears automatically when the aircraft approaches the altitude hole.

Another application of the Prisell method of tuning is in the area of Airborne Radar Directed Approaches. On return to March AFB during the initial test flight we had a KC-135 on the ramp turn his APN-69B to short pulse. With Prisell tuning we were able to paint the tanker beacon code along with ground mapping (figure four). The beacon code provides an excellent aid to a radar directed emergency approach. It allows the radar operator to positively identify the airfield from 80NM. In cases of emergency diversions when the approach is made at a strange field, the beacon as an aid to navigation would be very helpful.

The final, and most promising application of the Prisell method of tuning, is that of low level cell formation flying. At the present time the B-52D APN-69C does not have a short pulse capability. We plan to flight test a screwdriver adjustment of a variable resistor in the unit (R-319) that will allow pulses as short as one half microsecond to interrogate the beacon. This will give us the ability to station-keep in TA mode while flying cell formation. Low level cell formation is a very critical phase of flight. We currently fly these formations at low altitudes over water and accomplish mining operations utilizing coastal ground returns. The capability to maintain cell position on radar, and simultaneously identify ground returns for bombing, greatly enhances safety as well as bombing accuracy.

Continued on Page 23

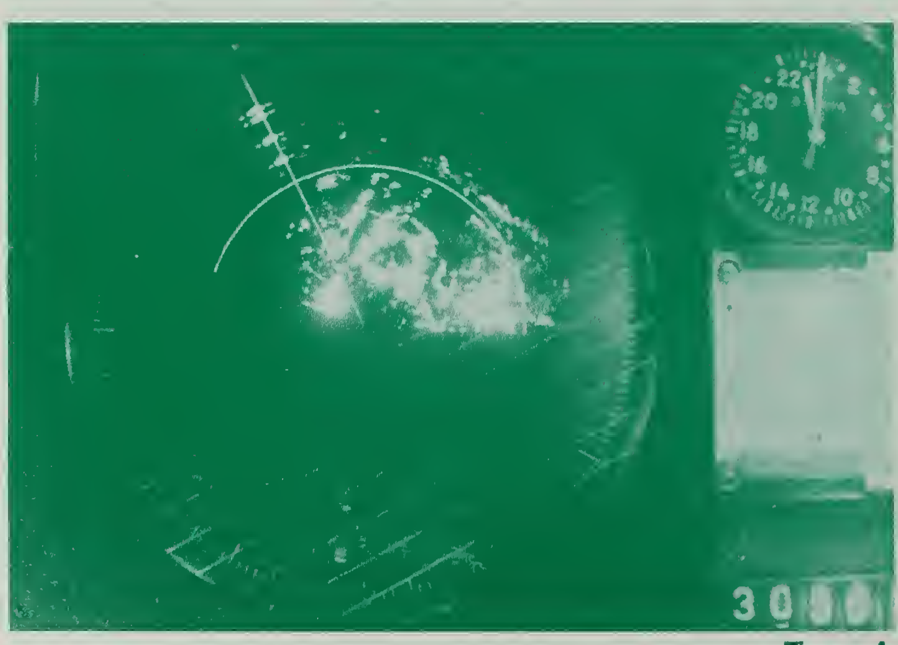


Figure 4

BRIEFING THE TA TACTIC

INFLIGHT COORDINATION

The fourth in our series of TA/EVS tips

Capt Chris Moore
8AF/DOTTA, Barksdale AFB

If it is well planned, the TA tactic can be smartly executed. But this requires additional coordination inflight.

If the TA calibration run results in a crossover altitude in excess of 1000′ AGL, the offense team should coordinate a second calibration area to gain more meaningful results. They should follow the terrain elevation closely, and give target altitudes when appropriate. This is especially helpful during climbs and descents over high terrain and when TA or radar altimeter equipment malfunctions. When the pilot starts a climb or descent, look into the radar and EVS scope to crosscheck his actions. Be very hesitant to say "cleared on radar" when the EVS scope is full of terrain, or the radar shadows are increasing! Verbally relate the EVS scene or radar picture to your chart, for example: "Hill 2491, EVS center," or "Peak 3630, 2 o'clock, 3 miles." This provides both terrain and navigation feedback to the pilots.

Navigators shouldn't allow the pilot to "descend visually." A visual descent does not provide training for a closed curtain environment. Insist that he have EVS video, TA trace, or target altitude information to get the aircraft down into the route. Pilots should tell the crew what they're doing, and be consistent. Crossovers are particularly important, and often criticized during evaluations. Coordinate the crossover descent with the offense team; they should be looking for hidden second peaks on their charts.

Back each other up on heading, altitude, and airspeed by calling deviations as they occur. Call for checklists when required or as coordinated during mission planning, run them quickly, and call complete. Listen to the other specialties on interphone, as well as monitoring your own duties. This will cut down on missed or duplicated calls.

Don't change procedures constantly. Use terminology agreed on during mission planning. Transfer aircraft, airspeed, navigation, or bomb run control as briefed and stick to your plan. This plan cannot be analyzed as good or bad unless it is followed long enough to give it a fair evaluation.

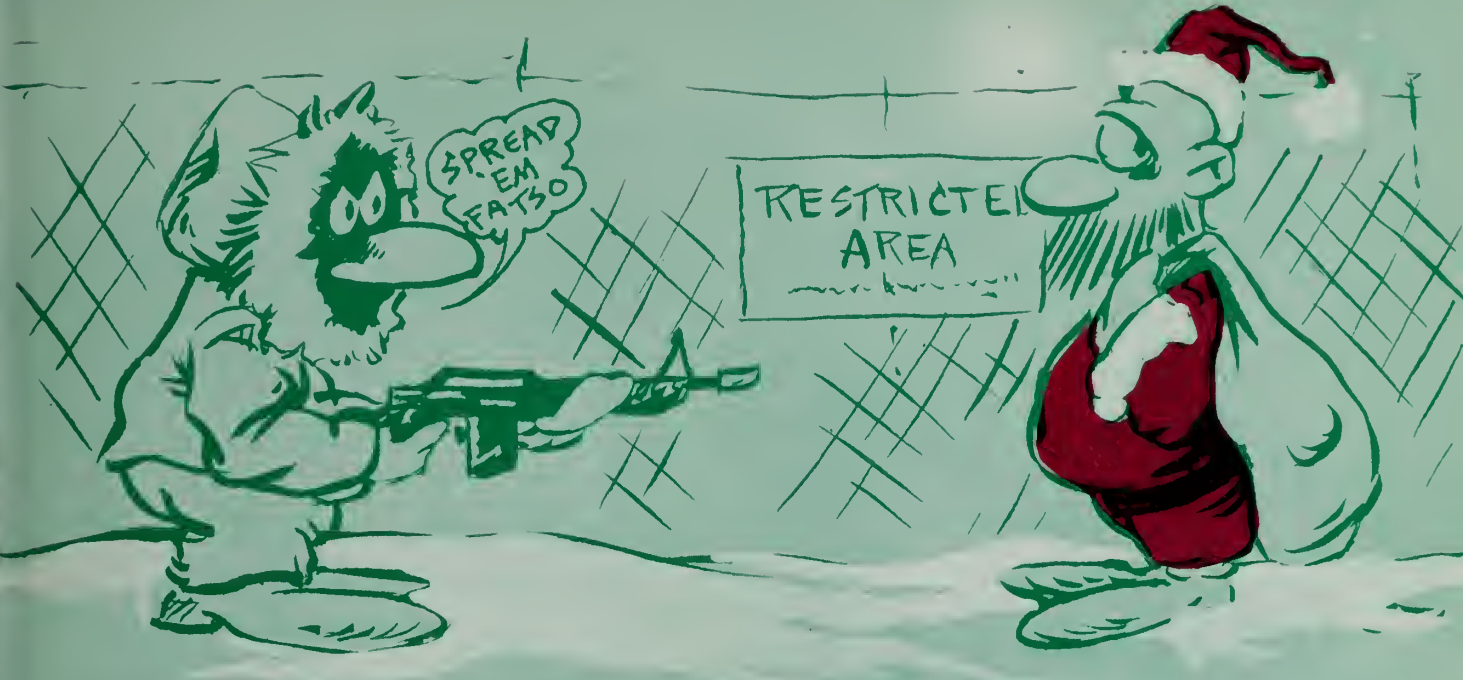
Next month: Instrument Flying Techniques

the Night Before Christmas

Capt David L. Albert
92nd ARS, Fairchild AFB

'Twas the night before Christmas and out on the pad,
not a crewdog was stirring, they all were too mad.
The stockings were tucked in the quick-dons with care
in case the sound of a horn filled the air.
The crewdogs were nestled all snug in their beds,
while visions of messages danced in their heads;
and "Boom" in his flightsuit, and I in my cap
had just settled down for our night "combat nap".
When out on the pad there arose such a clatter
I sprang from my bunk to see what was the matter.
Out of the trailer I flew like a flash,
then I slipped on the ice and came down with a crash.

The searchlights reflected the fresh falling snow,
and the SOF called the RVR 12 or below.
Headgear before the southwesterlies fly,
and by morning the RCR wouldn't be dry.
When what to my still sleep-glazed eyes should appear,
but an aircraft of sorts that had snow skis for gear.
It was pulled by eight engines, perhaps even more,
that were powered by hay, and no JP-4.
They looked like large dogs and each wore a hat rack,
and they didn't leave contrails to point out their track.
The pilot, descending, called passing the fix,
and at first I thought "CEVG up to new tricks",
but then spotting the A/C, so jolly and quick,
I suddenly realized it must be St. Nick.



He made a nice landing with reindeer all harking,
and called up Command Post for taxi and parking.
He pulled up to the gate and then into the center
between the two gates and from there asked to enter.
The guard let him in so his badge he'd exchange,
but St. Nick said, "Tonight there's been a slight change.
I don't need a badge for this one special night,
I was told that you'd all recognize me on sight."
His flight suit was red, not like most Air Force men,
and his hair and beard weren't in 35-10;
he was short and quite round, with a definite paunch,
which was caused by 3 flight lunches each time he'd launch;
and a smile and a manner so pleasant and pert
that the gate guard could tell Nick sat no alert.

The little old man then explained who he was:
not a 20 year crewdog, but old Santa Claus.
So the guard let him pass to distribute his gifts,
which included promotions and several RIFs,
some more "back-to-backs" and no summer vacations,
but some no-notice ORI certifications.
After finishing passing his gifts all around
he returned to his craft with a leap and a bound.
Then the outer gate opened and off they all flew
crabbing into the wind like a B-52.
And I heard him exclaim as he lifted the gear,
"Merry Christmas to all, and a Happy New Year".

ASSAULT BREAKER

Major Henry W. Williamson, Jr.
HQ SAC/XPHD

r&d corner

"RED FLIGHT! ECHELON RIGHT; ATTACK FORMATION CHARLIE"

"TWO!"

"THREE!"

The aircraft commander in Red Three eased eight throttles forward and banked slightly right. He could faintly make out the soft orange glow of the engines of Red One and Red Two as they skimmed the surface of the desert in the pitch black darkness, but his station keeping equipment (SKE) provided him with his position relative to the other aircraft. The flight instruments and terrain avoidance radar scope kept him abreast of flight and terrain conditions.

"Pilot, Nav — standby for arming checklist.

"RED FLIGHT, THIS IS VIPER FLIGHT; WE'RE BINGO. GOOD LUCK." Two U.S. Marine fighters peeled off the the right.

"Pilot, guns! Fighter cover is clear."

"Roger gunner. EW . . . got anything?".

"Negative, sir, Just the usual noise. I don't think anyone has any idea we're coming."

"OK. Lemme know if we start drawing flies."

Red three moved into position. The prebriefed attack plan would be to pop-up about 50 kilometers before reaching the main battle area. Red One flew the lead and would have control over the attack. The kill zone behind the main battle area had been confirmed by encoded data transmitted after takeoff through the satellite communications network. The ground commander had cleared the area for the attack. Final targeting of mobile armored vehicles would be the responsibility of the lead B-52 crew using advanced radar equipment. Red Two and Red Three could monitor the battle on their respective radar scopes but, with this attack option, the lead ship would control all missiles once they were launched from the attacking aircraft, thus preventing duplicate targeting.

"RED FLIGHT! STANDBY TO CLIMB . . . NOW!"

"TWO!"

"THREE!"

Red Three's pilot smoothly moved all eight throttles to the firewall and initiated a climb.

"RED FLIGHT! AIR WEAPONS."

"TWO!"

"THREE!"

"Pilot, Radar. Weapon indicator shows lead has a positive data link lock-on missile

stations 1 and 7. Consent switches to arm."

"Rog, Armed Radar, how does the target area look?"

"I concur with Lead; he has six areas designated for attack and I agree with his selection. Looks like the main staging areas are dispersing into position for an assault against Ghengis Pass. We show about 50 'movers'. I doubt the friendlies could withstand another massed assault like yesterday's."

"Crew. Nav. Missiles 1 and 7 are away! Standby left break and descent."

"RED FLIGHT! LEFT BREAK; CLOSE TO TRAIL."

"RED TWO!"

"RED THREE!"

The three black BUFs gracefully executed a descending left turn as the SKE panels displayed the aircraft positions relative to one another.

"How's it look, Radar?"

"Looks good, Sir. Lead's two missiles have dispensed their submunitions and the remaining four missiles are tracking nicely. There goes two's. Now ours. Nav, start the checklist for the next attack."

B-52s against tanks? Not magic — advanced technology. The foregoing scenario dramatized one of the many hypothetical options which may be available in the near future for attacking massed armor from a standoff position. A key problem facing the guys on the ground today is how to fight "outgunned" and win. The Army believes that it can hold its own while outnumbered on the battlefield, but may have difficulty preventing an all-out "blitzkrieg" attack along a narrow front. Further, ground forces could not last long against massively reinforced enemy armored forces. For this reason the Army believes the capability to "service" enemy reinforcements, or Second Echelon elements, prior to engagement in battle would aid in controlling the rate and flow of enemy movement.

One such initiative that attempts to tie together a series of advanced technologies to find and kill tanks before they engage in battle is the ASSAULT BREAKER program. ASSAULT BREAKER, as currently planned, is a cooperative strike program sponsored by the Defense Advanced Research Projects Agency (DARPA) to apply promising technologies to the battle field. The concept proposes using technology to overcome enemy mass; thereby preventing an enemy breakthrough in a central Eurpoean conflict; thus the name, ASSAULT BREAKER.

First, the ability to find and track moving targets behind enemy lines was addressed in the PAVE MOVER radar program. PAVE MOVER is a side looking radar which differentiates moving from stationary targets. Now under development, PAVE MOVER will be tested and evaluated on a test bed F-111 aircraft in FY81. Key elements of PAVE MOVER are its Moving Target Indicator (MTI) and its Low Probability of Intercept (LPI) features. LPI is achieved by managing the amount of power used to view particular areas of the battlefield. Once targets are sensed, the radar can convert to a mapping radar if the targets cease moving. The mapping mode has extremely sensitive resolution and can maintain a "lock-on" if desired. The PAVE MOVER will also have the capability to track and guide (through data link) multiple weapons simultaneously against different target "baskets". Subsequently, "smart" submunitions will be dispensed in various patterns and individually "seek" their targets. There's no doubt that the ability to "see" the ground battle through a PAVE MOVER type sensor will be tremendously important. However, the development of a family of "smart" weapon submunitions appear to be the key to success in this scenario.

Two such submunitions will be tested in conjunction with other elements of the ASSAULT BREAKER system during a FY81 feasibility demonstration. These submunitions are SKEET and TGSM (for terminally guided submunition). When dispersed over a wide area, these submunitions use their own integral sensors to find and kill enemy armor. TGSM, for example, is a glide missile, about 4 inches in diameter and about 2 feet long, which uses an imaging infrared (IIR) seeker to guide the munition onto a tank's "hot spot". This concept will be demonstrated in the Army's Corps Support Weapon System program. For the Air Force, the approach is to take six T-16 Patriot missiles and modify them for launch from an attack aircraft. Because of the T-16's size, many believe a B-52 would be a logical airframe choice for the airborne launch demonstration.

These technologies are available today and the ASSAULT BREAKER demonstrations should help to determine the feasibility of such a concept. If the demonstration is successful, SAC aircrews may see the day when these technologies are applied to our conventional warfare arsenal.

BUSY PRAIRIE

Continued from Page 7

communications network, an extremely important element of the Strategic Projection Force.

The equipment that arrived from Tinker contained a vast array of antennas, cables, transmitters and receivers that provided the capability for worldwide communications. Contact from Camp Prairie with the B-52 and EC and RC-135 crews as well as Grand Forks (FOB #2) and HQ SAC was available at all times during the exercise.

By Sunday afternoon, Camp Prairie neared completion. All elements of a flying operation had representative sections in the cantonment: Command Section, Intelligence, Operations, Maintenance, Protocol, Chaplain, Dispensary, Fire Department and Historian. There was even a CX — "Camp Exchange" to buy a snack, soft drink, or those razor blades you left at home.

Work to complete the deployment continued into the night. The ramp was still a bustling staging area, tents and supplies moving to their designated spots, all teams working to beat the 72-hour deadline, and they did, by 7 hours! As the PRIME BEEF and RIBS teams line up for midnight chow, the on scene project officer dictated a hastily scrawled letter over the phone to HQ SAC: "at 2300 on Sunday, 22 September, the 1200-man plus cantonment area at Whiteman is basically complete. The PRIME BEEF and PRIME RIBS activity which started at 0600 hours Friday was finished in 65 hours, 7 hours ahead of schedule—the camp is ready for meals 36 hours ahead of schedule. Some small problems occured with the shower water heater equipment in the HARVEST EAGLE kit, but good old GI ingenuity overcame them with no trouble."

Prime Beef Crew installing tent from Harvest Eagle Kit

The no-notice BUSY PRAIRIE exercise began for Minot and Grand Forks at 0900 on 22 Sep. An L-hour was declared by HQ SAC which initiated both wings' efforts to meet the SPF deployment criteria. Fourteen B-52s from the 5th BMW at Minot were tasked to deploy to Whiteman AFB (FOB #1) for simulated bare base operations. For the remainder of BUSY PRAIRIE, these aircraft would operate from Whiteman. Meanwhile, Grand Forks' 319th BMW would simulate bare base operations at home. During this initial time frame, reconnaissance personnel from the 55th SRW and the 9th SRW were readying their airplanes for SPF support. RC-135's from Offutt were destined for Whiteman along with a U-2R from Beale AFB.

The EC-135, which is tasked for early communications support, was dispatched from Offutt to Minot to pick up the SPF commander and his staff, then proceeded to Whiteman to set up the necessary command and control communications for arriving aircraft and personnel.

As the B-52 generation at Minot and Grand Forks went into full swing, support equipment and personnel began to flow to Whiteman from numerous bases aboard KC-135s, C-5s, and C-141s.

Mobility ideas, which had been only paper exercises, were now being put into action. The ramp and supply storage area at Whiteman began to expand as personnel and cargo continued to build up. The facility that had started as a bare base began to function as an integrated unit to support this full-blown contingency deployment.

When the sun rose on Tuesday morning, the parking apron at Whiteman had a new look—airplanes! The EC-135 and two RC-135s from Offutt had arrived shortly after dark and the Minot B-52s had begun landing at 2300. During the night the aircraft of the SPF had descended on FOB #1.

In between the B-52 arrivals, KC-135s,

In-Processing at Camp Prairie

C-141s and C-5s continued to bring the men and women, equipment and supplies necessary to support the flying operations of BUSY PRAIRIE. With the exercise only a day old, over 1200 people and a thousand tons of supplies filled the tents of Camp Prairie and the staging areas of FOB #1.

Finishing touches were applied to the cantonment to prepare for the exercise. Antennas for AFSATCOM, UHF, and HF communication were erected as the communications people completed work on their facilities. Signs designating various facilities were built and placed in their proper locations. The CX was fully stocked and operational. The newly arrived maintenance personnel began preparing their B-52s for the first night's mission. The last of the concertina wire was laid around the operations and intelligence areas.

As night fell, the flight crews began their preparation for the first sorties over the RED FLAG range. Detailed target study, communications procedures, special aircrew procedures, and release requirements were all reviewed. As the last of the Camp Prairie inhabitants finished the evening meal, the first B-52 was scheduled to launch on the mission from Whiteman.

Prior to each evening's activity, the SPF commander and staff reviewed the planned mission. Procedures for battlefield management from the EC-135 and the associated command and control communications between all participants were finalized. The staff reviewed threat information and its effects on the mission's routes and target areas. All of this data was analyzed, collated and passed to the flight crews during the mission briefings.

Each night the B-52s from Whiteman and Grand Forks flew to a common point over Utah to join up as a stream. With controlled low level entry times and five minute separation, the bombers using EVS descended to an altitude of 600 feet over the desert terrain and headed for their targets—three "enemy" airfields located in the heart of the RED FLAG area.

Flying through simulated SAM and AAA defenses, and avoiding the F-15s defending the target area, the B-52s successfully struck their assigned targets with inert bombs all three nights of the exercise. The airborne command post with the SPF commander aboard the EC-135, coordinated and analyzed the threat advisories from the RC-135 and the E-3A. After evaluating this information, the commander determined whether alternate routes to the targets were necessary or whether the threats could be overcome with jamming assistance from Navy EA-6Bs orbiting close by. Combined with the B-52 low level terrain avoidance tactics in the dead of night, the airborne command post battlefield management assured success in target destruction. In the three nights of the exercise, the SPF launched 68 B-52 sorties and 26 direct support sorties. *All 94 sorties took off on time.*

Camp Prairie had a host of important visitors who were impressed with the SPF's performance. High ranking dignitaries from the Joint Chiefs of Staff, Air Staff, U.S. Readiness Command, Rapid Deployment Joint Task Force and SAC came for a first hand look at the operation. General Ellis, Commander-In-Chief of SAC, was most pleased with the overall operation and spent some time talking to members on the PRIME RIBS and PRIME BEEF teams. Lieutenant General Leavitt, Vice Commander-In-Chief of SAC, stated that the Strategic Projection Force had come of age.

Continued on Page 27

CFIC Corner

HALF FLAPS

The article for this month's CFIC Corner is a brief synopsis of an event which occured at Ellsworth AFB, SD in March of this year. CFIC feels that this article, written by Capt John G. Platt of the 37 BMS Training Flight, contains information of benefit to the BUF driver.

I encourage any crew member in the Command who has an item or event that he or she would like to share, to jot down the vital information and forward this to either CFIC Carswell or Castle. Don't worry about a polished product – just the basic details will be fine.

Fly the Aircraft
Lt Col Bob McConnell
Chief CFIC
Castle AFB, CA

Capt John G. Platt
28 BMW, Ellsworth AFB, SD

On the evening of 5 March 1980 Lt Col Mike Harley, 28 BMW/DOT, Major Doug Aitken, 37 BMW/DOT, 1Lt John Snider 37 BMS IN, and myself were scheduled for a 4.7 pilot pro. The mission was scheduled with a 150 fuel load and included refueling with a 28 ARS tanker. Major Aitken was instructor pilot for the mission.

Preflight went fairly well with only a few minor maintenance problems. For takeoff, I occupied the pilot seat and Major Aitken was in the co-pilot seat. Conditions for takeoff were RCR 12 and ceiling 800 feet broken. After a short ATC delay, we launched at 1841 local. Everything went well up to flap retraction.

AT the 50% point the flap stopped moving. Major Aitken immediately placed the flap lever to off and advised me to continue the climb at 200 KIAS. We then requested and received an initial clearance to 10,000 feet with a 30 NM radius clearance of Ellsworth TACAN. The computed minimum recommended flaps up airspeed at this point was 172 KIAS so we felt 200 KIAS would be reasonable for the half flap position. Following level off, Major Aitken requested that Lt Col Harley change seats with me so I could be free to get in the books. Shortly after our seat change we continued our climb to 20,000 feet to avoid possible icing conditions and conserve fuel.

After the second level off, aircraft weight was 320,000 pounds. At this point we elected to make a controllability check to determine if there would be control difficulties. Flaps were kept at the 50% position, since the Dash-1 is specific on this point: "The landing should be made with the flaps remaining in the position where they stopped. If a partial flap landing is inadvisable due to critical landing factors, only flap extention may be attempted, and then only if visual operation by the chase plane pilot reveals that no unusual position or alignment of flaps exist". "Critical landing factors" were definitely a concern to us because of the low RCR and forecast deteriorating weather.

The controllability check was uneventful, using a computed best flare speed of 158 KIAS and an initial buffet speed of 140 KIAS. Luckily, about this time, our command post reported that work was being done to improve the Ellsworth RCR and that ceiling and visibility were improving. Maj Lee Plowman, B-52H Stan Eval Branch Chief was in the command post by this time and we began to compare figures for planned landing ground run, best flare speeds, initial buffet speeds, and brake energy limits.

The chart "Best Flare Speeds at Intermediate Flap Settings" was used for the best flare speed determination. It is important to note that the "remarks" on this chart direct an increase in the chart speeds by *10 knots for airbrakes four usage.* The problem of coming up with landing ground run and brake energy limit figures is more of a problem, however, since the book does not address these items for a partial flap landing. The following conditions were used to derive the landing data: Temperature zero, pressure altitude 3150, and RCR 16.

Since a 50% flap position is close to the maximum drag/minimum lift position, (flap drag increases at a linear rate from 29,000 pounds at 100% flaps to 37,000 pounds at 37% flaps) all concerned felt that the actual ground roll would approach that plotted for a full flap landing. Interpolation was made between the full flap and no flap data, leaning towards full flap information. All parties fully discussed the details of the approach. (Boeing folks at Wichita, KS were involved by this time) This included, seat position, power requirements, flare technique, aircraft float, touch down, braking, and go-around procedures. Final approach gross weight was planned at 255,000 pounds with a best flare speed of 147 KIAS using airbrakes four. The planned landing ground run was computed, using a .73 uphill correction, to be 6500 feet.

After landing configuration was established, "the picture" was very close to the normal full flap attitude. Power requirements were slightly more than normal. Once set up on final, we decided to make a low approach into ground effect to determine flare possibilities. The aircraft handled well in all respects.

Final approach and landing were accomplished by making a slow reduction in power combined with a cautious flare. Major Aitken called out the decreasing airspeed in the flare while Lt Col Harley used power to maintain the desired airspeed. Touchdown and drag chute deployment were normal. Braking throughout roll-out required moderate toe pressure with ample runway remaining.

After taxiing into the chocks, the flaps, at maintenance's request, were fully lowered and then raised. Investigation revealed several bolts missing from one of the outboard jack screws, and thus, while the flaps worked normally on the ground, airloads inflight prevented normal operation due to a binding action.

In retrospect, a half flap landing closely approximates a full flap landing. Also, we learned, since the appendix lacks the charts, there is really no way to compute landing data for partial flap positions except by interpolation. However, our 6500 foot value did seem to be fairly accurate.

Thanks for the story John,

CFIC

FIND THE BEACON

Continued from Page 14

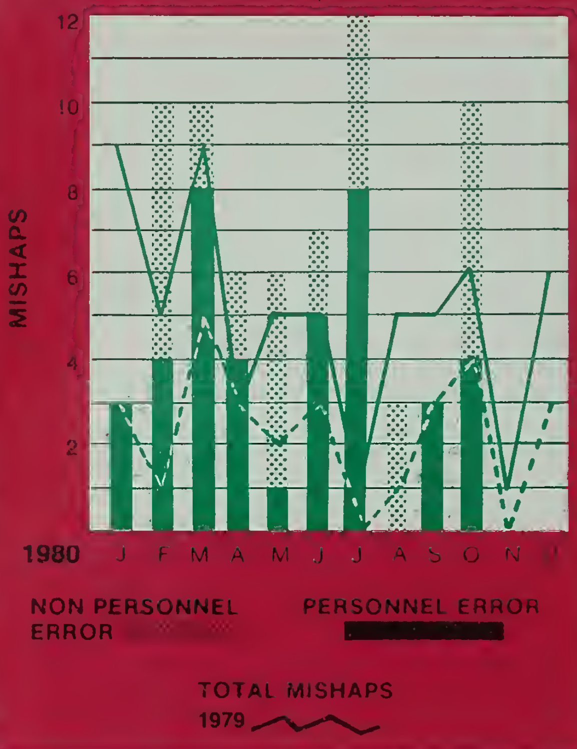
The procedure for Prisell tuning has been derived from the old manual tuning procedure utilized for beacon bomb runs. A few important variations have been incorporated to enable tanker beacon painting. When beginning the rendezvous, put the B-52D Radar in beacon mode transmitting at the briefed beacon frequency. Locate the KC-135 tanker. After beacon contact has been established, call the tanker and have him set his APN-69B for short pulse. Be sure you are within eighty nautical miles and then set your radar to Hi Gain. You must now follow the classified procedure for manual tuning in T.O. 1B-52C-1-1 (formerly T.O. 1B-52C-1B). Section VIII pages 8-2 to 8-3 has the procedure to follow. The one important variation is to detune only five MHz from briefed beacon frequency. This provides the magic setting for the local oscillator to provide the required 30MHz stream of information for both ground mapping and beacon pulse display. It is very important that the switches be properly configured. Pay special attention to the optional bombing switch, offset switch, and radar operation switch. The key to obtaining successful results is to have the tanker in short pulse, and to detune only five MHz from briefed beacon frequency. In this configuration, the operator gain setting controls the display of ground map and beacon. The display of the beacon video is determined by beacon signal strength and local oscillator setting. If the beacon is weak in ground clutter, it will not be seen by the operator. If it is too strong over ground clutter, a tweak of the radar frequency control switch will reduce its intensity.

A more accurate and convenient tuning of the beacon is being considered for testing. This is possible with the addition of a separate beacon receiver tapped off the waveguides. The waveguides exist as well as the receiver and technology to do this. The advantage of a separate beacon receiver is the ability to have separate gain control over the signal strength of the beacon in radar mode and in TA mode.

The results achieved from our testing to date have been astonishing. The ability to paint tanker beacon code along with ground mapping is useful for rendezvous, station keeping, navigation, and ARDAs. It has definite possibilities for use in low level cell formation flying. In addition, all these results have been produced with no additional equipment or expenditure of funds. Mr. Hadsell summed it up best when he described us navigators as members of the "Cult of the Third Best", a theory devised by Sir Watson Watt of WWII British radar fame. The theory says that the *best never comes* and *second best comes too late,* so we had better learn to make do with what we have, the *third best.* While the ASQ-48 is an old system, it is still the system we must use for today's training and tomorrow's mission.

Missile Mishap Report

DOD CLASS A, B and C



AGM-69A LAUNCH MISHAP

A live launch of a short range attack missile (SRAM) was conducted (BULLET BLITZ VIII) on the Tonopah test range in Nevada. A first pulse burn was observed but not second pulse ignition or burn. The missile impacted the range shortly thereafter. The investigation of the wreckage revealed chafed wiring in the guidance and control electronics section not related to impact damage. This wiring between the guidance and control electronics and destruction preset computer is critical in providing the 28VDC fire command for second pulse to the separation ignition switch. Based on the available evidence, the investigation board concluded that the most probable cause of the mishap was shorting of the Igniter 2 wire to ground.

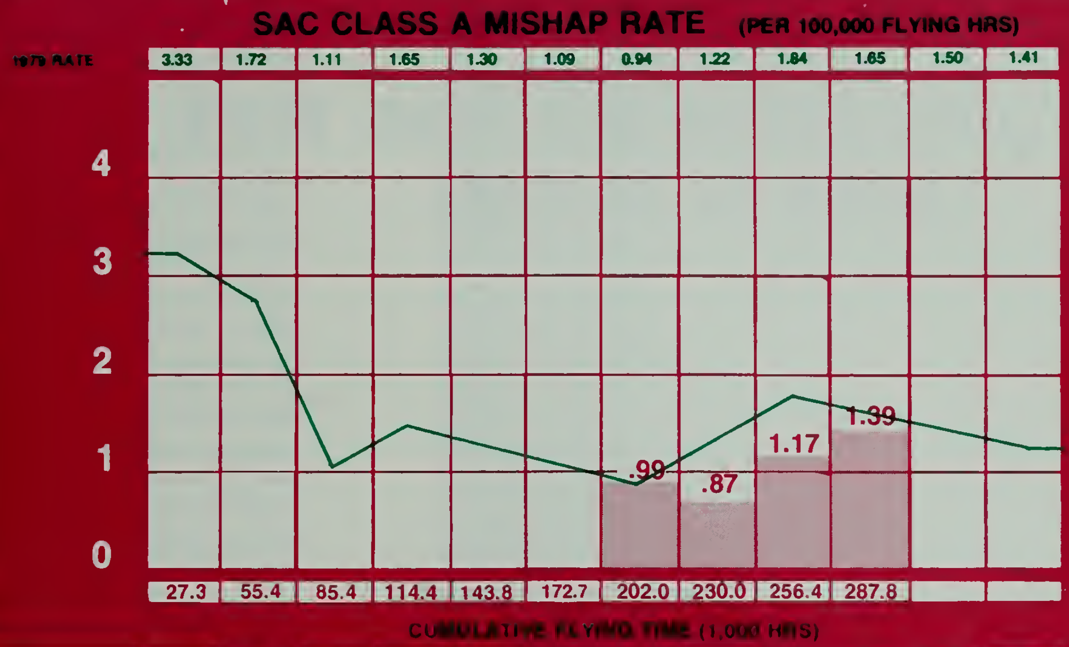
COLD SOAK MISSILE

A periodic maintenance team was performing an annual inspection and maintenance on a launch facility. They discovered circuit breakers which control power to the launch tube heater assembly were in the off position and affixed with a danger tag. Tag had been annotated with the statement "Launch tube heater motor capacitor start burnt out. Requires replacement."

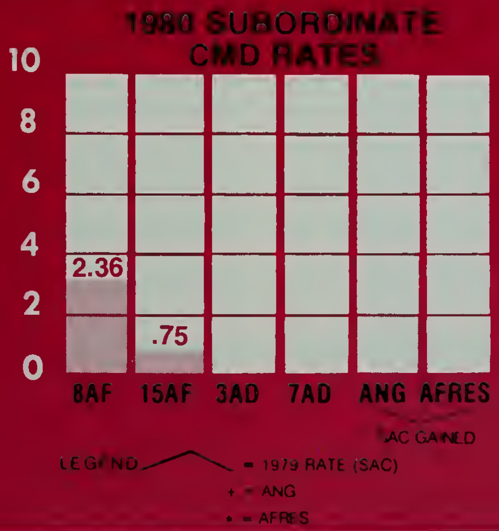
A temperature check revealed the launch tube temperature to be 56 degrees Fahrenheit. Temperature should be maintained at 70 plus or minus 10 degrees. The maintenance team restored operation of the heater coil and fan by replacing the overload fuse to the heater. The question arose as to why there had been no voice reporting signal assembly (VRSA) Channel 25 that would have alerted the missile combat crew that a low air flow condition in the entry duct to the launch tube heater or an out of tolerance temperature control in the launch tube existed. Upon further investigation, the maintenance team discovered that TA4 (temperature alarm) read 8 psi which would indicate a 70 degree launch tube temperature when in fact the temperature was 56 degrees. The FA2 (flow alarm) had been zeroed out thus preventing a VRSA from reporting. The temperature alarm and flow alarm were properly adjusted by the maintenance teams.

Findings were reported to Job Control. A missile recycle was then accomplished as Odgen ALC recommended non-mission capable status and missile recycle. Past maintenance records indicated no VRSA Channel 25 had been reported from Oct 78 to Aug 80. A maintenance analysis covering this period of time revealed that incomplete troubleshooting/maintenance and ineffective follow-up by maintenance control were causative factors in this mishap. This again points out the importance of insuring maintenance discrepancies are thoroughly analyzed by both maintenance shops and maintenance control to insure maintenance actions address total repair/replacement of defective components. Systems knowledge and conscientious duty performance play a very important role in this area.

1980 Flying Safety Rate



MISHAPS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1979	1	0	0	1	0	0	0	1	2	0	0	0
1980	0	0	0	0	0	0	2	0	1	1	0	



MISHAP STATUS

KC-135A	JULY 80
FB-111A	JULY 80
B-52	SEP 80
FB-111	OCT 80

BIG INSTRUMENT

Crew Coordination and Team Work Ladder to Success

Captain Rhett T. Cooper
1st Combat Evaluation Group
Barksdale Air Force Base, Louisiana

Of course we may never know . . . why an aircraft with a crew of highly trained individuals crashed. Often accident reports will conclude without a shadow of doubt it was pilot error with perhaps some "other contributing factors". Accepting this finding without question places you, as a supporting crew member, in a potentially dangerous situation. Let us not assume that crew coordination equates to team work, but rather that they are progressive steps on the ladder to safe flight. Effective crew coordination is gained through knowledge of procedures, while team work comes through professional pride and experience, and cannot be thought of separately.

In the instrument environment, reducing cockpit confusion while performing individual crew duties in a timely and professional manner is an excellent start toward effective crew coordination, and will lead to "team work". For example, assisting the pilot with altitude reminders and course or heading advisories is called team work and could possibly make the difference between a properly executed approach and landing or disaster. Let's look further into how a crew can help the pilot flying the aircraft on final approach to better understand what team work or group effort is all about.

A quick double check of obstructions and unusual terrain is a good start. Did the pilot brief a back-up approach? A good "listening watch" for forecast wind direction at the base of intended landing will allow you to select an approach to the appropriate runway. Closely monitor radios for altimeter settings, altitude clearances, and heading instructions. Understand approach and landing speeds for your aircraft and corresponding aircraft configurations. Be aware of altitude restrictions and always anticipate a missed approach. Expect the unexpected!

These are just a few of the many ways you can support the pilot during this critical phase of the mission. Hopefully you realize that just performing required duties efficiently is good crew coordination and that professional airmanship and crew discipline manifest team work. A little discussion with your crew would surely produce a long list of team work items for all crew positions during *every* phase of flight. The result of such a list is an increased margin of safety for any flight activity. However, we must now look even further into this subject to fully understand the meaning of good crew coordination as it translates into team work.

Crew coordination starts with an intimate knowledge of your *own* duties. Then, and only then, can you add the finishing touches or the "polish" which makes a crew shine. A lack of knowledge usually results in slow performance of duties and subsequent delays and distractions. If you are slow and others wait, another crew member may rush or omit a checklist item. In either case, a critical mistake could be made. Speaking of duties, we cannot limit ourselves to the Dash One. It is your responsibility to possess a working knowledge of those additional regulations pertinent to your crew position and to be familiar with any directive governing the operation of your aircraft. The ability to assist others will materialize only when you have an adequate knowledge of the job *each* crew member performs.

There are two aspects of crew coordination that can be practiced on each mission as you begin reading and gaining that extra knowledge from the various flight directives. The first is simply being prepared for each phase of the mission, beginning with ground operations such as copying and verifying an ATC clearance. Anticipate the next flight activity (such as a SID or radar departure) and *be ready*. Don't wait till the last minute to open the checklist and begin thinking of your duties. The second is employing good communication procedures. The single, most dangerous situation that can occur is not understanding a radio transmission and assuming another crew member understood what was said. If in doubt, ask! And, by all means, if you observe a deviation bring it to the attention of the crew. Don't forget good interphone practices. Cockpit confusion can be created instantly by a blocked radio transmission. A good rule of thumb is "think before you speak". Use standard terminology, be clear and concise, and address crew members by position and *not* first names.

To properly complete a mission on multi-crew aircraft requires good crew coordination and strong team work. As a crew member you have an obligation to yourself and other crew members to do your best and perform your duties in a way to enhance, not hinder, the rest of the crew. Very simply, know how to effectively blend your duties with the activities of others. This is most easily accomplished if you become an expert and that requires a thorough job knowledge. Smooth, effective crew coordination is most difficult to achieve but is extremely important. Once attained, then team work will give you that added margin of safety. Accidents *can* be prevented and you as a crew member can make the difference.

BUSY PRAIRIE

Continued from Page 21

The men and women of Camp Prairie and the crews had proved that SAC did, indeed, have a force capable of meeting contingency challenges of the future. Lieutenant General P.X. Kelly, USMC, the commander of the Rapid Deployment Force commented that the camp was more professionally run than any he had ever seen. He was especially impressed with the B-52 static display which showed the external modification that will increase the B-52H weapons carriage. Major General Jack Chain, Air Force Director of Contingency Operations, described his impressions of the camp in two words, "Sierra Hotel!".

While the SPF flying activity was taking place, Camp Prairie was fulfilling all the functions of a thriving military camp. Between 7000 and 1200 meals were served at each sitting in the mess tent. The influx of C-141s and KC-135s was continuing to bring in the support equipment. Every day there was a lesson learned, with new ways to solve new problems. Aircraft were turned in the middle of the night for the next day's flights utilizing integrated combat turn techniques. Maintenance personnel worked around the clock to clear write-ups, load weapons, refuel and launch the bombers on the next mission.

BUSY PRAIRIE was a proving ground for SAC and the Air Force for many things. We learned a lot about our aircraft and the associated equipment. The B-52 is a tough old bird that can carry the battle right to an enemy's front door. But most important, we learned about SAC's people. Given 72 hours to do what has historically taken at least five days, the PRIME BEEF and PRIME RIBS teams erected the HARVEST EAGLE kit in 65 hours. From the commanders to the cooks, from the firemen to the flyers, *the people made the exercise work*. Throughout the camp, there was a pride you could feel, a pride you could see in every face and in every thing the men and women of SAC had planned, built, and operated. It was evident that the Strategic Projection Force was capable of effectively and efficiently supporting the requirements of the National Command Authorities and the Rapid Deployment Joint Task Force. BUSY PRAIRIE was an unqualified success.

PROFESSIONAL PERFORMERS

MINUTEMAN CREW

While on alert Crew R-163, 90th SMW, F. E. Warren AFB, received word of a serious accident nearby. A civilian motor vehicle had wrecked at the junction of the access road and the local highway. Concerned for the safety of the passengers, the crew put rescue operations in motion. Security personnel were dispatched to investigate and render any first aid needed; they discovered the situation was extremely critical. All five passengers were injured, and the vehicle was dangling over the edge of the highway bridge, threatening more injury. Three children were suffering from head and internal injuries, with an infant suffering broken bones. Two adults were in critical condition; one was trapped inside the wreckage, and both had ceased all vital signs. Crew R-163 ordered all possible first aid. Wing command post was notified and requested to send an ambulance and helicopter from the base with medical personnel. The State Highway Patrol was also informed, and asked to send help to the scene. The two adults did not survive the crash, but the three children were saved. This was primarily due to the prompt first aid and assistance provided by Air Force personnel under the supervision of 1Lt Froiseth and 2Lt Jordan. Their performance throughout the situation was of the highest caliber; clearly a standard of excellence to be emulated. Crewmembers include: MCCC 1Lt David J. Froiseth, and DMCCC 2Lt Patrick A. Jordan.

TITAN CREW

Missile Combat Crew E-025, 381 SMW, is named Crew of the Month for their demonstrated capability to deal with hazardous situations. During a recent emergency at a Titan II missile site they experienced a commercial power failure, resulting from a topside thunderstorm. The diesel generator started and transfer to standby power was successful. However, the crew soon received indications of a diesel malfunction. The crew commander dispatched the MSAT and MFT to the silo to correct the problem. They found the diesel engine pumping oil over the floor. Soon the diesel shut itself down. Without commercial or standby power, the crew performed the complete facility power loss checklist. The high winds of the thunderstorm continued, endangering propellant transfer system equipment topside. This equipment included an oxidizer holding trailer containing close to 3000 gallons. A maintenance individual who was stationed topside for tank watch reported that a PVD (portable vapor detector) had alarmed. The crew commander directed the individual to proceed to the access portal elevator to avoid possible fumes. The individual was extremely reluctant to leave his control trailer. The crew commander directed two security specialists stationed at the site to proceed topside with a new PVD and escort the tank monitor to the portal. Minutes after the monitor left the control trailer it was overturned by high winds. The crew commander ordered a sniff check with the PVD to insure that the holding trailer was not leaking. There was no leak, but the security specialists reported that a propellant conditioning trailer was close to turning over onto the holding trailer. This would possibly rupture the holding trailer causing a leak. The crew commander quickly advised job control and the missile potential hazard team of the situation. Their professionalism and ability to react under pressure and their quick assessment of a dangerous situation directly prevented the injury of the tank monitor. Outstanding crew coordination also allowed them to respond both to a power loss, which threatened missile alert status, and to an extremely dangerous storm which threatened the topside propellant tank. Crewmembers include: MCCC 1Lt Ulysses C. Swift, DMCCC 1Lt Jason Vance, MSAT A1C Rodney L. Siburt, and MFT A1C Joseph D. Bishop.

FLYING CREW

Captains David W. Ross and Earl C. Simmons, 340th AREFG, Altus AFB, are named Flying Crew of the Month for outstanding performance in dealing with an emergency during a critical phase on a training mission. After returning to the local area, the pilots planned a touch and go for their first approach. Capt Simmons, the copilot, flew the approach and landed the aircraft. While Capt Simmons kept the aircraft on centerline, Capt Ross reset the flaps and trim. Noticing that the aircraft appeared to be slowing, Capt Simmons queried the pilot to see if the brakes were being applied. At the same time, Capt Ross noticed the deceleration and quickly confirmed that neither pilot was braking. Capt Ross assumed control of the aircraft and maintained runway alignment with nosewheel steering in spite of a rapidly increasing right yawing tendency. Tower notified the crew that a large amount of smoke was coming from the right main gear truck. Drawing upon their skill, Captains Ross and Simmons safely stopped the aircraft within the confines of the runway. Capt Ross then ordered the aircraft abandoned, and the crew egressed without incident.

The aircraft stopped 6200 feet down the runway with all tires on the right truck totally destroyed. All brakes on the truck were fused prior to touchdown causing not only tire destruction, but a flat spot ground on the bottom part of the wheels as well. Postflight inspection revealed that the copilot's metering valve was in the "brake on" position. The valve could not return to the "brake off" position due to corrosion and overtorquing in the wheel assembly. This discrepancy caused the brakes to drag slightly and subsequently overheat during taxi and takeoff. All of the tires were deflated after takeoff when the overheated brakes caused the thermal fuses to melt. When the aircraft touched down the wheels could not rotate, and the aircraft skidded to a halt. The crew reacted with skill and speed to this unexpected event and averted a potentially disastrous mishap. Their professionalism reflects the high degree of discipline and training which characterize SAC crews.

MAINTENANCE NCO

MSgt Theodore L. Sessums, 11th Strategic Group, RAF Fairford, is SAC maintenance NCO of the Month. With little more than a hammer and screwdriver available, Sgt Sessums repaired sheet metal damage on an aircraft which was delivering equipment from another unit. Earlier, an air starter duct, on another aircraft, was found severely bent, making a ground power engine start next to impossible. Due to the small size, unusual shape, and inside baffles, a replacement part was put on order. Knowing this could possibly ground the aircraft for days, Sgt Sessums attempted a repair. Within a matter of hours, the dents were gone, the duct was pressure checked and reinstalled, and the aircraft operationally checked and put back into commission. As Fabrication Section NCOIC, Sgt Sessums has insured the steady progression of his organization by manufacturing numerous aids to the maintenance effort, such as tool kit chits, fuel bowsers and book binder holders. He is often called upon to assist other shop and base organizations and has proved himself to be among the best in maintenance. His outstanding craftsmanship, expert knowledge of publications and technical data make him a very valuable member of his unit and the Strategic Air Command.

HALL OF FAME

TACTICAL FLYING

OVER TWENTY-FOUR YEARS

170 AREFG, McGuire (NJANG)	None

OVER TWENTY-TWO YEARS

171 AREFW, Greater Pittsburgh (PAANG)	Mar '58
157 AREFG, Pease (NHANG)	June '58
97 BMW, Blytheville	Aug '58

OVER TWENTY-ONE YEARS

940 AREFG, Mather (USAFR)	May '59
307 AREFG, Travis	Sep '59

OVER NINETEEN YEARS

151 AREFG, Salt Lake City (UTANG)	Feb '61
161 AREFG, Sky Harbor (AZANG)	Apr '61
126 AREFW, Chicago O'Hare (ILANG)	Apr '61
134 AREFG, McGhee Tyson (TNANG)	Aug '61

OVER EIGHTEEN YEARS

11 SG, Fairford	Feb '62
340 AREFG, Altus	Jun '62
96 BMW, Dyess	Aug '62

OVER SEVENTEEN YEARS

19 BMW, Robins	Aug '63

OVER FIFTEEN YEARS

160 AREFG, Rickenbacker (OHANG)	Dec '64
320 BMW, Mather	Jul '65

OVER FOURTEEN YEARS

452 AREFW, March (USAFR)	Sep '66

OVER THIRTEEN YEARS

92 BMW, Fairchild	Feb '67
55 SRW, Offutt	Jul '67
2 BMW, Barksdale	Aug '67

OVER ELEVEN YEARS

5 BMW, Minot	Feb '69
42 BMW, Loring	Sep '69
141 AREFW, Fairchild (WAANG)	Oct '69

OVER TEN YEARS

28 BMW, Ellsworth	May '70

OVER EIGHT YEARS

7 BMW, Carswell	Mar '72
101 AREFW, Bangor (MEANG)	Mar '72
306 SW, Mildenhall	Apr '72
416 BMW, Griffiss	May '72
305 AREFW, Grissom	Aug '72

OVER SEVEN YEARS

379 BMW, Wurtsmith	Apr '73

OVER SIX YEARS

931 AREFG, Grissom (USAFR)	Feb '74
384 AREFW, McConnell	Mar '74
189 AREFG, Little Rock (ARANG)	May '74

OVER FIVE YEARS

43 SW, Andersen	Dec '74
68 BMW, Seymour Johnson	Sep '75

OVER FOUR YEARS

6 SW, Eielson	Dec '75

ICBM

OVER SIXTEEN YEARS

1 STRAD, Vandenberg	Sep '64

OVER TEN YEARS

341 SMW, Malmstrom	Apr '70

OVER SEVEN YEARS

390 SMW, Davis-Monthan	Jul '73

OVER SIX YEARS

351 SMW, Whiteman	Oct '74
91 SMW, Minot	Nov '74

OVER FOUR YEARS

321 SMW, Grand Forks	Feb '76

To gain listing in the Hall of Fame, a SAC or ARF unit must be Class A mishap-free for 48 months.

SAC SAFETY SCREEN

320 BMW, Mather Crew E-108: P Capt Daniel J Richardson, CP Capt Dean S Riding, N Capt Eugene S Richardson, BO Sgt Alva W Medbery Jr

93 BMW, Castle Crew IT-56: P Capt Lawrence H Stevenson, N Capt John D Kirby Jr, BO TSgt George W Campbell

28 BMW, Ellsworth Crew R-106P: FP Capt William W Kelly, CP 1Lt Chris A Beaty, IN Capt Eric W Sharp, BO SSgt Marvin L Aldrich

6 SW, Eielson Crew E-04: FP Capt Kenneth D Lorenz, CP Capt Ronald R Meyer, NN Capt William G Tanner, NN Capt Richard D Power

96 BMW, Dyess Crew R-43: P Capt Bill Sumption, CP 1Lt Ken Miller, RN Capt Chuck Williams, N 1Lt Mike Bonitz, EW 1Lt Paul Brastauskas, G SrA Dale Zanardelli

44 SMW, Ellsworth Crew R-101: MCCC Capt PauL D Cook, DMCCC 2Lt Steven Schuck

91 SMW, Minot Crew E-23: MCCC 1Lt Robert S Lamond Jr, DMCCC 2Lt Bruce M Kinney

308 SMW, Little Rock Crew R-112: MCCC 1Lt Phillip A De Porto, DMCCC 2Lt Joe D Shrum, MSAT Sgt Jeffery L Watson, MFT SrA David L Mullenax

321 SMW, Grand Forks Crew E-034: MCCC 1Lt Philip R McLean, DMCCC 2Lt John L Gezelius

341 SMW, Malmstrom Crew E-001: MCCC Maj Bill L Armstrong, DMCCC 2Lt Rick A Cranston

351 SMW, Whiteman Crew R-085: MCCC 1Lt Mark S Loepker, DMCCC 2Lt William V Cox

390 SMW, Davis Monthan Crew R-152: MCCC Capt Brian C Weber, DMCCC Capt Billy Brantley, MSAT TSgt Floyd K Meglii, MFT SSgt Oscar E L Valdez

380 BMW, Plattsburgh Crew S-04: P Capt Thomas M Larkin, RN Capt William M Moran

380 BMW, Plattsburgh Crew S-51: P Maj Thomas V Polonis, RN Capt Kent N Heaton

310 AREFS, Plattsburgh Crew R-182: P Capt Richard A Robbins, CP Lt Lin A Riley, N Lt Gerald R Smith, BO Sgt Robert A Downs

380 AREFS, Plattsburgh Crew S-101: IP Capt James G Dickensheets, CP Capt James N Spendley, IN Capt Karl B Young, IBO MSgt Bobbie K Sikes

384 AREFS, McConnell Crew E-159: P Capt Erik C Swanson, CP 1Lt Robert J Mathews, N 1Lt Craig D Christman, BO SSgt Michael L Parsons

91 AREFS, McConnell Crew E-108: P Maj James A Newton Jr, CP 1Lt Roger D Johsnon, N Capt Doyle H Tambrell Jr, BO SSgt Dennis C Fox

The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system *IAW AFR 127-2/SS1.*

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